4. TROUBLESHOOTING

4-1. ERROR CODES

CODES	When occur	Symptom	POSSIBLE CAUSES
4E	• When the number of detected water supply pulses is less than 10 within 20 seconds after water is supplied. • When the number of detected water supply pulses is less than 100 within 80 seconds after water is supplied • When the target water level is not reached within 5 minutes after water is supplied.	• If an error has occurred when the number of detected water supply pulses is less than 10 within 20 seconds after water is supplied, the water supply valve is turned on once and waits. • All driving parts except for the drain part are turned off and draining (20 seconds ON/ 5 seconds OFF) is performed for 3 minutes.	• The water supply pressure is low. • The water supply valve is closed. • The aqua stop is out of order. • The case brake fails to detect the pulse.
4E-1	• When the water temperature for the cycle is 80°C or higher in the water supply section.	• Draining (20 seconds on/5 seconds off) is performed for 3 minutes.	• Hot water (over 80°C) is supplied.
5E	• When the high pressure switc-2 (HPS) does not detect a low level after the drain pump operates for a predetermined period of time.	• The driving part stops.	• A foreign object has entered the drain pump and the pump is stuck. • The drain pump is out of order. • The heater is incorrectly connected.
PE	• When the location is not detected for 2 minutes after the synchronous motor operation. (In Test Mode, when the location is not detected for 1 minute.) • In the cleaning section, when the location is not detected for 3 minutes.	• Draining (20 seconds on/5 seconds off) is performed for 3 minutes.	• The synchronous motor is out of order. • The location in the cam is incorrect.
tE	• When the temperature sensor data output is equal to or greater than approximately 4.95V or is equal to or less than approximately 0.05V. • When the water temperature is detected as equal to or less than -3°C for 30 seconds in succession during the cleaning the heater operation.	• Draining (20 seconds on/5 seconds off) is performed for 3 minutes.	• The thermistor is out of order.
HE-1	• The start temperature is saved 30 seconds after heating starts. Thereafter, if the temperature change is equal to or less than 4 °C for 10 minutes, the heater relay is turned off for 1 second and then restarts heating. Then, if the temperature change is equal to or less than 4°C for 10 minutes again, an HE-1 error occurs.	• Draining (20 seconds on/5 seconds off) is performed for 3 minutes.	• The heater is out of order. • The heater is improperly connected.
HE	• When the temperature is measured as equal to or greater than 80°C for 3 seconds.	• The driving part stops and the main relay is turned off.	• The heater is out of order. • The thermistor is out of order.

CODES	When occur	Symptom	POSSIBLE CAUSES
bE-2	• When the button is pressed and held for 30 continuous seconds or longer.	• The driving part stops.	• The touch button is out of order. • An object is on the touch button.
bE-3	• When IC I2C communications between the Sub PBA and the touch button fails.	• The driving part stops.	• The touch button is out of order. • The sub PBA or touch button PBA is not properly connected.
AE	• When communications between the main PBA and the sub PBA fails for 24 seconds. (In Test Mode, communication fails for 6 seconds.)	• The driving part stops.	• The main PBA or sub PBA is out of order. • The communications connection for the main PBA or sub PBA is not properly connected.
LE	• When the water leakage sensor data is equal to or less than 3V for 3 seconds.	• If sensor data over 3V is detected after draining (20 seconds on/5 seconds off) is performed for 3 minutes, the drain pump is turned off. If data over 3V is detected, draining is performed for 3 minutes and then the sensed data is checked again.	• There is a water leak.
oE	• When the overflow sensor data is equal to or less than 3V for 3 seconds.	• If sensor data over 3V is detected after draining (20 seconds on/5 seconds off) is performed for 3 minutes, the drain pump is turned off. If data over 3V is detected, draining is performed for 3 minutes and then the sensed data is checked again.	• The case brake fails to detect the pulse. • The aqua stop is out of order.
1E	**Condition 1)** • When the high pressure switch (HPS) does not measure a high level after the completion of the water supply. **Condition 2)** 1) If the high pressure switch measures a low level for 3 continuous seconds while a wash is performed, the HPS is checked again. If a high level is detected, a normal operation is performed. If this is repeated 5 times, an 1E error occurs. 2) If the high pressure switch measures a low level for 3 continuous seconds while a wash is performed, the HPS is checked again. If a low level is detected, additional water is supplied for a predetermined period of time. If a low level is measured even after additional water is supplied twice, an 1E error occurs.	• Draining (20 seconds on/5 seconds off) is performed for 3 minutes.	• The motor is out of order. • The HPS is out of order.

CODES	When occur	Symptom	POSSIBLE CAUSES
3E	• If communicating with the motor fails for 10 seconds, the BLDC Power Relay is turned off for 5 minutes and is then turned on again. If communicating fails again for 10 seconds after turning the BLDC Power Relay on, this error occurs (only for BLDC motor type models). (This error does not occur when the door is open.) (In Test Mode, this error occurs if communicating fails for 10 seconds.)	• Draining (20 seconds on/5 seconds off) is performed for 3 minutes.	• The BLDC motor is out of order. • The BLDC motor connector is not properly connected.

⚠ **WARNING**
If leakage problem occurs, turn off the main water supply before calling a service. If there is water in the base pan because of an overfill or small leak, the water should be removed before restarting the dishwasher.

4-2 TEST MODE

4-2-1 TEST MODE

Item	Description
Entering Test Mode	• Press the Sanitize, Half Load and Power keys at the same time to enter Test Mode.
Changing the mode	• Touch button type: Press the Intensive key to change the mode: (L1 : At → L2 : Ft → L3(Lc) → L4(Ld) → L5(Hd) → L7 → L8 → L9 → LA → Lb → At →.. (Repeats)) • Tact button type: Press the Course key to change the mode: (L1 : At → L2 : Ft → L3(Lc) → L4(Ld) → L5(Hd) → L7 → L8 → L9 → LA → Lb → At →.. (Repeats)) • If the mode is changed, it automatically starts. However, if the door is open, it does not start automatically and a “dE” error occurs.
Displaying all	• If the product enters Test Mode, all product displays are turned on for 1 second. However, if the Sanitize, Half Load and Power key combination is held down continuously, all displays are turned on continuously. • If no key is pressed, the version is displayed.
Displaying the main program version and the sub PBA option number.	• The information is displayed as 2 digits in turns : The micom code (first 2 digits) → version (latter 2 digits) → sub PBA diode option number. E.g.) Main Micom Version: Lq25 Sub PBA: FBI Premium model It is displayed as follows: Lq → 25 → 07. * The Sub PBA option number for each model 00 : FS BETTER 01 : FS BEST 02 : SBI BETTER 03 : SBI BEST 04 : SBI PREMIUM 05 : FBI BETTER 06 : FBI BEST 07 : FBI PREMIUM
Displaying the sub program Version.	• The sub micom version is displayed as 2 digits in turns while the Start key is pressed down when the option is displayed. A. Touch button type sub: LU XX B. Tact button type sub: nh XX
L1 : “At”	• “At“ is displayed. • Auto Test Mode. (This is the mode used for the automated line test.)
L2 : “Ft”	• “Ft” is displayed. • Draining (25 seconds on / 2 seconds off) is performed for 30 seconds. • The high pressure switch (HPS) level is checked 5 seconds after the motor operates (at 2800 rpm): If a high level is detected, a 5E error occurs. If a low level is detected, water is supplied. • Water is supplied for 333 pulses. • If no water is supplied, a water supply error (4E) occurs. • After the completion of the water supply and the HPS high level is not detected, an 1E error occurs. • If the water supply is complete, the turbidity sensor runs. (It increases the PWM duty until it reaches 3.2V) • During PWM, “Ft” and the turbidity sensor voltage data are displayed in turns (e.g. 3.2v→32). • If the target voltage is not measured even after the max duty, an alarm sounds and “E3” is displayed.

Item	Description
L3(Lc)	• Runs the circulation motor. (BLDC: 2800 RPM, AC motor: High). • If the HPS high level is detected, “Lc” is displayed. If the HPS low level is detected “L3” is displayed. • The middle rotor runs for 1 minute → The lower + middle rotors run for 1 minute → The lower + upper rotors run for 1 minute.
L4(Ld)	• Runs the circulation motor. (AC motor: Low, BLDC: 2800 RPM). • If the HPS high level is detected, “Ld” is displayed. If the HPS low level is detected “L4” is displayed. • The middle rotor runs for 1 minute → The lower + middle rotors run for 1 minute → The lower + upper rotors run for 1 minute.
L5(Hd)	• Circulation motor (BLDC : 2800 RPM, AC motor : LOW) runs. • HPS: If a high level is detected, the heater is turned on. If a low level is detected, the heater is turned off. (“L5” is displayed.) • If the heater runs for 3 minutes, the heater is automatically turned off. • While the heater runs, "Hd“ and the measured temperature are displayed in turns. • If the temperature is equal to or higher than 60°C, the heater is turned off. • When starting, the dispenser runs for 1 minute. • The middle rotor runs for 3 minutes → The lower + middle rotors run for 3 minutes → The lower + upper rotors run for 3 minutes.
L7	• The circulation motor runs (BLDC: 2800 RPM, AC motor: High). • The synchronous motor runs by alternating the location between the power zone left and the power zone right at 1 minute intervals.
L8	• Runs the vent motor, the drying heater and the thermal actuator of the dryer unit.
L9	• Water is supplied until an overflow is detected. • If an overflow is detected, “oF” is displayed.
LA	• Runs the drain pump for 60 seconds (25 seconds on / 2 seconds off). • After 60 seconds, the motor runs for 5 seconds and the HPS level is checked. At this time, if the HPS high level is detected, a 5E error occurs.
Lb	**[Device Test Mode]** 1. Press the HALF LOAD key : Drying heater → Fan → Thermal Actuator → All Off 2. Multi Tabs : Drain Pump → Motor (AC motor: LOW, BLDC: Run) → Motor (AC motor: HI, BLDC: Run) → OFF 3. Press the Reservation key. : Synchronous Motor → Cold Water → Heater (runs up to 2 seconds only) → OFF

4-2-2 Data Display Mode

Item	Description	Display
Entering Mode	To enter the mode	When the power is on, press and hold the Half Load and Delay Start key combination for 5 seconds. (To exit, press the key combination again.) (This allows you to enter Data Display Mode and check the current sensor status.)
Changing Mode	To change the mode	The mode is changed whenever the Half Load key is pressed. (d0 : main micom version → d1: sub model option → d2 → d3 → d4 → ….. → dC → .. (Repeat)) • If 5 minutes have passed in display mode, the unit automatically returns to normal mode.
d0	Version display mode	• Displays the 2 digits of the main micom version in turns. (E.g. “Lq” → “XX”) • While the Start key is held down, the sub micom version is displayed as 2 digits in turns.
d1	SUB PBA model option display mode	• Sub model option display * The Sub PBA option number for each model. 00 : FS BETTER 01 : FS BEST 02 : SBI BETTER 03 : SBI BEST 04 : SBI PREMIUM 05 : FBI BETTER 06 : FBI BEST 07 : FBI PREMIUM
d2	High pressure switch check	• hI : High Level • Lo : Low Level (E.g. “d2” and “Low” are displayed in turns.)
d3	Synchronous motor location signal check according to the operation of the synchronous motor	1: Middle 2: Lower + Middle 3: Power Zone Left 4: Lower 5 : Power Zone Right 6: Lower + Upper 7: Middle (E.g. “d3” and “Low” are displayed by turns.)
d4	Water Temperature	Displays “d4” → 2 digits of the temperature → decimal places. (E.g. In the case of 24.5, “d4” → “24” → “-5” are displayed in turns.)
d5	FlowMeter Pulse	Displays “d5” → number tens → number of ones. (E.g. In the case of 167 pulses, “d5” → “16” → “-7” are displayed by turns.)
d6	Turbidity AD Data	Displays “d6” → the first decimal place → the second decimal place. (E.g. In the case of 4.05V, “d6” → “40” →”-5” are displayed in turns.)
d7	Overflow Sensor Volt	Displays “d7” → the first decimal place → the second decimal place. (E.g. In the case of 4.05V, “d6” → “40” →”-5” are displayed in turns.)
d8	Water Leakage Sensor Volt	Displays “d8” → the first decimal place → the second decimal place. (E.g. In the case of 4.05V, “d6” → “40” →”-5” are displayed in turns.)
d9	Target RPM	Displays 2 digits in turns.
dA	Current RPM	E.g. In the case of 2000rpm, “dA” → “20” → “00”
db	Cycle Cnt	Displays 2 digits in turns. E.g. For 65525 cycle, db → 6 → 55 → 25 are continuously displayed in turns.
dC	Water supply pulse counter used in total.	The water supply pulse counter is reset if the water softener function execution is complete.

4-2-3 Wash cycle table

Program	Cycle	Cycle Selection Information	Running time (min)	Water (ℓ)	
Intensive 70°C		Heavily soiled items include pots and pans	148	17	
Auto 40 ~ 65°C Daily auto (DW-∗G∗∗∗∗/XSA)		Lightly to heavily soiled daily using items, automatic detection of the amount of soils	90 ~ 148	9.1 ~17	
Express 65°C		Normally soiled daily using items, with short cycle time	87	11.6	
ECO 45°C Normal (DW-∗G∗∗∗∗/XSA)		Normally soiled daily using items, with reduced energy and water consumptions	145, 160 (DW-SG520, D149)	10	DW-BG97 BG77 (D170) SG97 SG72 (D175) FG72
				11.8	DW-FG520∗/XSA
				12	DW-BG57 SG52 FG52 (D147,D149) DW-FS720∗/XSA
Quick 50°C		Lightly soiled with very short cycle time	34	10.5	
Delicate 40°C		Lightly soiled delicate items	83	10.1	
Prewash		For dishes that need to be rinsed	17	3.7	
Normal 65 °C (DW-FG520, D147) Daily intensive (DW-∗G∗∗∗∗/XSA)		Normally soild daily using items	-	-	

4-3 MALFUNCTION TABLE

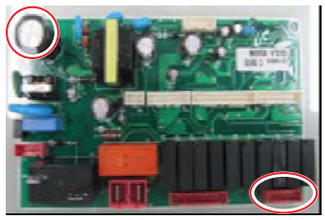
Error type	Error mode	Checking method	Corrective actions
Water supply error	4E	1. Check whether the faucet is open.	Open the faucet.
		2. Check whether the water supply has been cut off.	After wait until the water supply resumes and turn off the power. After the water supply resumes, turn on the power.
		3. Check whether any foreign material is in the Water Supply Line and the Aqua Stop Valve filter.	Remove the foreign material, clean the filter in Aqua stop valve with a brush.
		4. Check the connection for the Aqua Stop Valve connector.	Reconnect the Aqua Stop Valve connector.
		5. Check whether the coil in Aqua Stop Valve is conductive (Remove the connector before measuring.) • Normal: Approx. 3780Ω ± 10%	• Faulty: Replace the Aqua Stop Valve.
		6. Check whether the water supply stops, after water is supplied for 10 seconds.	• Faulty: Replace the Aqua Stop Valve and Flow Meter.
		7. Check whether the water supply stops after water is supplied for 80seconds or 5 minutes.	Check the water supply pressure. (> 0.5bar) • Faulty: Replace the Aqua Stop Valve and Flow Meter.
		8. Check whether the Aqua Stop Valve is operating normally in the Main PBA. • Check the Aqua Stop Valve Relay in Main PBA. : Check the voltage between the yellow wire of the CN5 and the yellow wire of the MAIN PBA RY2 Relay connector • Normal : 220V ~ 240V (while operating)	• Faulty: Replace the Main PBA assy. • Normal: Replace the Aqua Stop Valve
		9. Check the Power Relay.	See the “Power Relay error”.
Water supply error	4E-1	1. Check the hot water connections for the Aqua Stop Valve.	Adjust the hot water supply so that the temperate of the supplied water is less than 80˚C
		2. Check the operation of the “Thermistor”.	See the “tE1 error”.

Error type	Error mode	Checking method	Corrective actions
Drain error	5E	1. Check whether there is any foreign material in the Drain Hose and Drain Pump.	Remove the foreign material in the Drain Hose and Drain Pump.
		2. Check the connections for the Drain Pump connector.	Reconnect the Drain Pump connector.
		3. Check the operation of the high pressure sensor. • Confirm “d3” Mode in Data Display Mode • Faulty: Replace the high pressure sensor.	See the Data Display Mode
		4. Check whether the Drain Pump coil is conductive. (Remove the connector before measuring.) • Normal: Approx. 167Ω ±10%	• Faulty: Replace the Drain Pump.
		5. Check the operation of the Drain Pump Relay : Check the operating voltage between the green wire of the Main PBA CN5 connector and the yellow wire Power Relay connector • Normal: 220V ~ 240V (while operating)	• Faulty: Replace the Main PBA assy. • Normal: Replace the Drain Pump.
Key input Error (Tact SW model)	bE-2	Check whether there is condensation on the PBA. • Check whether tact switches are pressed.(SW1~SW8) • Normal: No condensation	• Faulty : Remove any condensation . • Normal : Replace the Control Panel assy.
Key input error	bE-2	Check whether there is condensation on the PBA. • CN2 and CN4 SUB PBA connector • CON1 LEFT/RIGHT TOUCH PBA connector	• Faulty: Remove any condensation and moisture. • Normal: Replace the Control Panel assy. (Sub PBA, Touch, Sub Wire)
	bE-3	• Normal: No condensation	

Error type	Error mode	Checking method	Corrective actions
Heater error	HE-1	1. Check the connections of the Heater connectors.	Reconnect the Heater connectors.
		2. Check the resistance between both ends of the Heater. : Check the resistance between both ends of the Heater directly, or check the resistance between the red wire of the Heater Relay and the black and yellow wires of the Power Relay, respectively. • Normal: Approx. 25.3Ω±10% • Check after disconnect circuit breaker or power cable.	• Faulty: Replace the Heater.
		3. Check the connections of the Heater Relay in Main PBA. : Check the voltage between the red wire of the Heater Relay on the base and the black and yellow wires of the Power Relay. • Normal: 220V ~240V (while operating)	Reconnect the Heater Relay connectors.
		4. Check the driving signals for the Heater Relay. : Measure the voltage between pin 1(D12 Anode side) of the Main PBA RY1 relay and pin 11 (blue) of the CN12 connector. • When the Heater is off : 10.5 to 13V • When the Heater is operating : < 0.5V	• Faulty: Replace the Main PBA assy.
		5. Check the Power Relay.	See the “Power Relay error”.
Heater Overheat error	HE	1. Check the operation of the Thermistor.	See the “tE Error”.
		2. Check the Heater Relay.	See the “HE-1 Error”.
Leakage error	LE	Check whether there is any trace of water leakage in the shutter. • Normal: No water leakage trace	• Faulty: Check the leakage location. Replace the faulty part.

Error type	Error mode	Checking method	Corrective actions
Half load error	PE	1. Check the connections for the Distributor Motor and Micro Switch connectors.	Reconnect the Distributor Motor and Micro Switch connectors.
		2. Check whether the coil in Distributor Motor is conductive. : Remove the connectors before measuring. • Normal: Approx. 11.1 ~ 12.3kΩ	• Faulty: Replace the Distributor Motor.
		3. Check the position sensing operations when turning the Micro Switch on and off. (Use L3 line test mode.) Check the conduction between the brown wire and the yellow wire. • Micro switch On: Short • Micro switch Off: Open • Micro Switch sign alters in ON/OFF state. • It is NG if keep in ON or OFF state for 24 seconds. * Do not supply with water and test.	• Faulty: Replace the Micro Switch for sensing positions. • Normal: Replace the valve distributor and CAM switch.
		4. Adjust Cam A'ssy and Find the faulty.	• Faulty: Replace Cam A'ssy.
		5. Check whether half load is operating normally. • Check the half load operation • Normal: 220V ~ 240V • Check the operation of Distributor Motor Relay. : Check the operating voltage between the 7pin(orange) wire of the Main PBA CN5 connector and the yellow wire of the MAIN PBA relay(RY2) connector. • Normal: 220V ~ 240V (while operating)	• Faulty: Replace the Main PBA assy.
		6. Check the Power Relay.	See the "Power Relay error".
Overflow error	oE	1. Check the connections for the Overflow Sensor connector.	Reconnect the Overflow Sensor connector.
		2. Check whether the Aqua Stop Valve operates normally.	See "4E Error".
		3. Check whether water is supplied (even small amounts) in the intervals when the Aqua Stop Valve is not operating.	Remove foreign material from the Aqua Stop Valve. If you cannot remove the foreign material from the Aqua Stop Valve, replace it.
		4. Error occurrence after confirm Method 1, 2, 3 .	Assy Case Brake replace .

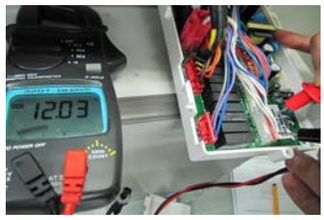
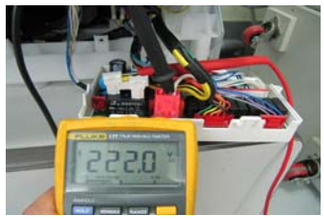
<table>
<tr><th>Error type</th><th>Error mode</th><th>Checking method</th><th>Corrective actions</th></tr>
<tr><td rowspan="2">Thermistor Error</td><td rowspan="2">tE</td><td>1. Check the connections for the Thermistor connector.</td><td>Reconnect the Thermistor connector.</td></tr>
<tr><td>2. Check whether the Thermistor is operating normally.
• Measure the voltage between both ends of the Thermistor.
• Normal: 0.05 to 4.95V
• Measure the resistance between both ends of the Thermistor : Remove the connector before measuring. (See the Table right.)
<table><tr><th colspan="2">Thermistor table</th></tr><tr><th>Temp(°C)</th><th>Resistance(kΩ)</th></tr><tr><td>5</td><td>125.814</td></tr><tr><td>10</td><td>98.360</td></tr><tr><td>15</td><td>77.480</td></tr><tr><td>20</td><td>61.477</td></tr><tr><td>25</td><td>49.120</td></tr><tr><td>30</td><td>39.510</td></tr><tr><td>35</td><td>31.985</td></tr><tr><td>40</td><td>26.053</td></tr><tr><td>45</td><td>21.347</td></tr><tr><td>50</td><td>17.590</td></tr><tr><td>55</td><td>14.573</td></tr><tr><td>60</td><td>12.136</td></tr><tr><td>65</td><td>10.157</td></tr><tr><td>70</td><td>8.541</td></tr></table></td><td>• Faulty: Replace the Thermistor.
• Nomral: Replace the Main PBA assy.
 </td></tr>
<tr><td rowspan="4">Main-Sub PBA Comm-unication error</td><td rowspan="4">AE</td><td>1. Check the connections between MAIN PBA CN7 connector and SUB PBA CN3 connector.</td><td>Reconnect the power plug</td></tr>
<tr><td>2. That Error is produced continuously after method 1 confirmation.</td><td>Replace: Sub-Wire</td></tr>
<tr><td>3. That Error is produced continuously after method 2 confirmation.</td><td>Replace: Sub-PBA</td></tr>
<tr><td>4. That Error is produced continuously after method 3 confirmation.</td><td>Replace: Main-PBA</td></tr>
<tr><td rowspan="4">High Pressure Switch error</td><td rowspan="4">1E</td><td>1. Check the connections for the high pressure sensor connectors.</td><td>Reconnect the high pressure sensor connectors.</td></tr>
<tr><td>2. Error occurrence after confirm Method 1.</td><td>• Faulty : Replace HPS replace.</td></tr>
<tr><td>3. Do it to act Test service test mode L2, L3 and motor (water) sound confirmation in L3.</td><td>• Faulty : Motor replace.</td></tr>
<tr><td>4. Problem occurrence to Method 1, 2, 3.</td><td>Main-PBA replace.</td></tr>
</table>

Error type	Error mode	Checking method	Corrective actions
AC Motor error	1E	1. Check the connections for the AC motor connectors • Hook of AC Motor Connectors confirms that was damaged • MAIN PCB CN4 connector	Reconnect the AC motor connectors.
		2. Check the Power Relay	See the “Power Relay error”.
		3. Error occurrence after confirm Method 1, 2 .	• Faulty: Replace the AC Motor
		4. Error occurrence after confirm Method 1, 2 .	• Faulty: Replace the Main PBA assy.
BLDC Motor Comm-unication error	3E	1. Check the connections for the BLDC motor connectors. • Hook of BLDC Motor Connectors confirms that was damaged. • MAIN PBA CN2 connector • MAIN PBA CN4 connector	Reconnect the BLDC motor connectors. 
		2. Check the Power Relay.	See the “Power Relay error”.
		3. Error occurrence after confirm Method 1, 2.	• Faulty: Replace the BLDC Motor.
		4. Error occurrence after confirm Method 1, 2.	• Faulty: Replace the Main PBA assy.

Error type	Error mode	Checking method	Corrective actions
No Power error	None	1. Check the connections for the power plug.	Reconnect the power plug.
		2. Check the voltage of the power outlet. • Nomral: AC 220V ~ 240V	Connect to a 220V ~ 240V power source.
		3. Check Power Key on state.	Try to touch the Power key.
		4. Check the connections for the Sub PBA and Touch PBA connector parts.	Reconnect the Sub PBA and Touch PBA connectors.
		5. Check the connection of the Main PBA connector CN9	Reconnect CN9
		6. Check the connections for the Sub PBA and Main PBA connector parts and	Reconnect the Sub PBA and Main PBA connectors.
		7. Check whether there is condensation on the PBA. • CN2 and CN4 SUB PBA connector • CON1 LEFT/RIGHT TOUCH PBA connector • Normal: No condensation	• Faulty: Remove any condensation and moisture. • Normal: Replace the Control Panel assy.
		8. Check whether the fuse is broken.	• Replace the fuse (15A).
		9. Check the DC voltage of the Main PBA.	See “Main PBA DC voltage error”.
		10. Check the wires of the Main PBA power part. • Measure the voltage between the black wire and the white wire of CN2. • Nomral: AC 220V ~ 240V	• Faulty : Check and replace the wires of the power part.
		11. In case of is No Power after Method ~10 action.	• Replace the Control Panel assy. (Sub, Touch, wire)
		12. In case of is No Power after Method 1~11 action.	• Replace the Main PBA.
No Power error	None	1. Check the connections for the power plug.	Reconnect the power plug.
		2. Check the voltage of the power outlet. • Nomral: AC 220V ~ 240V	Connect to a 220V ~ 240V power source.
		3. Check whether the fuse is broken.	Replace the fuse (15A).
		4. Check the wires of the Main PBA power part. • Measure the voltage between the black wire and the white wire of CN9. • Nomral: AC 220V ~ 240V	• Faulty: Check and replace the wires of the power part.
		5. Check Power Key on state.	Try to push the Power key.
		6. Check the connections for the Sub PBA and SUB wire. .	Reconnect the Sub PBA and SUB wire.
		7. Check the DC voltage of the Main PBA.	See “Main PBA DC voltage error”.
		8. Check whether there is condensation on the PBA. (FS model) • Check whether tact switches are pressed. (SW8) • Normal: No condensation	• Faulty: Remove any condensation • Normal: Replace the Control Panel assy.

Error type	Error mode	Checking method	Corrective actions
Display error	None	1. Check the connections for the Display LED connector part.	Reconnect the connectors for Display LED.
		2. Check the Display LED. (the top display of FBI model)	• Faulty: Replace the Display LED and Sub PBA.
Display error	None	1. Check the connections for the Display LED connector part.	• Reconnect the connectors for Display LED.
		2. Check the Display LED. (FS model)	• Faulty: Replace Sub PBA.
Dry function error	None	1. Check the wire connections for the Fan Motor.	Reconnect the Fan Motor connectors.
		2. Check the resistance of the Fan Motor coil.(Remove the connector before measuring.) • Normal: Approx. 145 Ω ±7%	• Faulty: Replace the Fan Motor assy.
		3. Check the resistance of the coil. (Remove the connector before measuring.) • Normal: Approx. 400 ~ 2000 Ω	• Faulty : Dry heater replace.
		4. Check the operation of the Fan Motor Relay : Check the operating voltage between the red wire of the CN5 connector and the yellow wire of the MAIN PBA relay(RY2) connector. • Normal: 220V ~ 240V (while operating)	• Faulty: Replace the Main PBA assy.
		5. Check the operation of the Dry Heater Relay : Check the operating voltage between the 3 pin wire of the CN4 connector and the yellow wire of the MAIN PBA relay(RY2) connector. • Normal: 220V ~ 240V (while operating)	• Faulty: Replace the Main PBA assy.
		6. After Method 1~3, if dry performance is bad.	Dry duct replace.

Error type	Error mode	Checking method	Corrective actions
Detergent is not dispensed.	None	1. Check whether detergent is inserted into the dispenser.	Check whether there is detergent in the Dispenser.
		2. Check the connections for the Dispenser connector.	Reconnect the Dispenser connector.
		3. Check the resistance of the Dispenser. (Remove the connector before measuring.) • Normal: Approx. 0.7 ~ 2kΩ	• Faulty: Replace the Dispenser.
		4. Check the operation of the Dispenser Relay : Check the operating voltage between the brown wire of the CN5 connector and the yellow wire of the MAIN PBA relay(RY2) connector. • Normal: 220V ~ 240V (while operating)	• Faulty: Replace the Main PBA assy.
Washing function error	None	1. Filter confirmation.	• Faulty:
		2. Check Rotors and ducts.	• Faulty: Replace Rotors and ducts
		3. Check the operation of the half load.	See “PE Error”.
		4. Check the operation of the Dispenser	See “Dispenser is not dispensed”.
The cycle does not start.	None	1. Check the connections for the Door Sensing Switch : Check the blue wire and the switch connected to the blue wire. • Normal: 10.5 to 13V (when the door is open) • Normal: < 1V (when the door is closed)	Reconnect the Door Sensing Switch Connector
		2. Check the connection for the Door Sensing Switch.	Reconnect the Door Sensing Switch Connector
		3. Check the operation of the Door Sensing Switch.(Remove the connector before measuring.) : Check the blue wire and the switch connected to the blue wire. • Normal: OPEN (when the door is open) • Normal: SHORT (when the door is closed)	• Faulty : Replace the Door Sensing Switch. • Normal : Replace the Main PBA assy.
		4. Check the operation of the Power Relay.	See “Power Relay Error”.

Error type	Error mode	Checking method	Corrective actions
Main PBA DC voltage error	None	Check the DC voltage of the Main PBA. • Measure the voltage between pin 1 of the main PBA CN7 connector and pin 2 of the CN7 connector. • Normal: 4.5V to 5.5V • Measure the voltage between pin 9 of the main PBA CN7 connector and pin 2 of the CN7 connector. • Normal: 10.5V to 13.0V	• Faulty: Replace the Main PBA assy. 
Power Relay error	None	1. Check the connections for the Power Relay connector : Start the cycle by pressing the Power key. when measure the operating voltage between the white wires of the Heater Relay, and the operating voltage between the yellow and yellow wires of the Power Relay. ⚠ Caution Check the color of the wires of the Power Relay and the Heater Relay. • Normal: 220V ~ 240V	Reconnect the Power Relay. 
		2. Check the door switch. : Check the white wire and the switch connected to the white wire. • When the door is open: The Door Switch is OFF. • When the door is closed: The Door Switch is ON • He Power Relay and the Heater Relay use a 12V line. If the switch is out of order, the Power Relay and the Heater Relay will not operate.	• Faulty: Replace the Door Switch.
		3. Check the driving signals for the power relay: Measure the voltage between pin 7 and pin 2 of the CN7 connector on the main PBA. • When the door is open or before the cycle starts. Normal: Normal: 1 V • After the cycle has started by closing the door and pressing the Power key. 10.5 to 13 V	• Faulty: Replace the main PBA assy.
		4. Check the operation of the Power Relay : Start the cycle by pressing the Power Key. Measure the operation voltage between the terminal (yellow wire + black wire) of the Power Relay and the terminal (white wire+ red wire) of the Heater Relay ⚠ Caution Check the color of the wires of the Power Relay and the Heater Relay. • Nomral: 220V ~ 240V	• Faulty: Replace the power relay.

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